DATA CENTER OPERATIONS BRANCH

NDS OPERATIONS PROCEDURE MANUAL
NO. P-A005

SYSTEMS SW & HW
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AMPERIF SOLID STATE DRUM

SYMBOLIC TITLE: SSD
ORIGINATOR:

INDEX

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DATA SYSTEMS OPERATIONS BRANCH
Operator Procedures
Amperif Solid State Drum (SSD) Subsystem

DCOB Procedure
No. 1-5

1.1 Scope

This document provides the operating procedures for the Amperif Solid State Drum (SSD) Subsystem.

1.2 Power-Up Procedures

1.2.1 UPS

Power-up the three UPS units associated with the SSD system. This is accomplished by setting the switches located on the front control panel on each of the three UPS units as follows:

a. Turn the AC INPUT and DC INPUT circuit breaker swiches ON.
b. Set the UPS MODE switch to OUTPUT.
c. Flip the MANUAL BY PASS toggle switch ON.

The UPS is now operational. The UTIL ON and BY PASS ON lights will be illuminated. Before proceeding to the next step wait 10 seconds or until the UPS AC volt meter registers 115 volts and the DC volt meter registers 96 volts.

1.2.2 Power-Up Amperif Solid State Drums (SSD)

The SSD system consists of seven cabinets. The two outside cabinets on the left and right sides of the system contain the solid state drums. The three center cabinets contain the central system with the cabinet on the right housing channel "B" and the cabinet on the left housing channel "A". The center cabinet (of the seven) contains the control unit. To power-up the SSD system:

a. Assure that the UPS is in the BY PASS mode.
b. Turn ON the DATA COPY drive. The data copy device is located in the lower section of the control cabinet. The ON/OFF switch is located on the left rear of the drive.

c. Turn power on to the three center cabinets. At the power control panel located at the top rear of each cabinet, turn the BLWR and CU switches ON.
d. Turn on power to the 4 outside cabinets (two each side). At the power control panel located at the top rear of each cabinet, turn the BLWR and the four SSD switches ON.

1.3 Initialize The Solid State Drum

1.3.1 Reset The Solid State Drum (SSD) System

Reset the SSD:

a. Verify that the Data copy READY light is on and the drive is in WRITE PROTECT. The ready light and write protect switch is located on the front of the Data Copy Device.
b. After the Ready Light comes on, TRIP the UPS OUTPUT toggle switch on the UPS.
c. At the Control Panel on the front of the center cabinet, set the CHANNEL ENABLE switch to BOTH.
d. Set the CHANNEL DISPLAY switch to A.
e. On the keypad depress the RESET button.
f. Key ILD and 1. When "CLEAR SMD DISPLAY" appears on the control panel display, answer YES.
g. Key ILD and 3. When "CLEAR SCRATCH MEMORY" appears on the control panel display, answer YES.
h. Key ILD and 7. When "CLEAR BUFFER MEMORY" appears on the control panel display, answer YES.
i. Key ILD and F. When "CLEAR HISTORY MAP" appears on the control panel display, answer YES.
j. Set the CHANNEL DISPLAY switch to B. Repeat steps e through i.

1.3.2 Restore Data Files To Solid State Drums (SSD)

a. Prep SSD 1 cabinet. Each of the four SSD cabinets, of which two are located on each end of the seven cabinet string, has eight prep switches which are located in the front center of the cabinet. The switches are configured with four each in two rows.

    1. Turn top row PREP toggle switches ON
    2. Press any RED PREP BUTTON in the row.
    3. After the PREP lights go out, return all four switches to the OFF (down) position.
    4. Repeat steps 1, 2, and 3 for the bottom row of PREP switches.

b. Repeat step a, for SSD cabinets 2, 3, and 4.
c. Restore data files. On the center cabinet control panel depress ILD and 0.
d. When "DO YOU WANT DATA RESTORED" appears on the display, answer YES.

1.3.3 Set Time-Of-Day

Set the timer:

a. On the control panel, enter on the keypad LOAD followed by T0D. The system time is set based on a 24 hour clock, therefore 12:30 am is entered as 0030, 2 am is entered as 0200 and 2 pm is 1400. When the display appears keyin the time HHMMSS, where HH is hour(s), MM minute(s) and SS is second(s). Depress the ENTER key.
b. To verify the correct time-of-day has been entered, depress DISP followed by T0D on the keypad. The current time will appear on the display unit. If the time is incorrect repeat step a.
c. Remove WRITE PROTECT from the data copy drive and the system is ready for normal operations.

1.4 Power Down Procedures

The SSD system provides two methods for powering down the system. One is caused by a power failure and is automatic. The second is a manual operation performed by the operator.

1.4.1 Power Failure

The SSD System has the capability to save all Solid State Drum and system data on the Data Copy Drive in case of impending power loss. Three Data Copy Lights are provided to monitor the data copy procedure. These are located in a small box that is installed on top of the control unit. The first light, the yellow POWER FAIL light, denotes that power has been lost, and the system is running off the battery. If power is restored within one minute, this light will go off and the system returns to normal operation. If power is lost for more than one minute, the SSD System assumes that power may not be restored before the battery is exhausted and it is necessary to save all SS Drum and system data on disk to prepare for complete power loss. The second light, the green DATA COPY light, denotes when this procedure is in process. This takes only a few seconds. The third light, the red SHUT DOWN AUTH light, denotes when data copy is complete, and the system is prepared for complete power loss. The system may now be powered down safely.

When powering up after a power failure, all Cache data may be restored to the pre-power failure state. This is done by doing a Data Restore after the cabinets have been reset and the SSDs are powered up. (Ref. Paragraph 1.3)

1.4.2 Manual Power Down

To power-down manually:

a. Assure the 1100/84 system is inactive and stopped.
b. Press RESET Button on the control panel keypad.
c. Enter TLD followed by Ø on the keypad. The response to this will be in the following sequence: a, b, c, or a, then c.

   1. Message display "DO YOU WANT DATA RESTORE?" The response is NO.
   2. Display is "STARTING CYCLINDER #XXX. ENDING CYLINDER #XXX OK?" The response is NO.
   3. "ENTER STARTING CYLINDER NUMBER." The response is 999. Upon completion of this entry, Data Copy is initiated.

d. During the duration of Data Copy the display will indicate "DATA COPY RUNNING" and increment cylinder numbers. Upon completion of Data Copy the display will indicate "DATA COPY COMPLETE."
e. Place Data Copy drive into WRITE PROTECT mode.
f. Power OFF all three control cabinets, and all four drum cabinets. (Via the circuit breakers on the back panels.)
g. Power OFF the Data Copy drive. (Via the circuit breaker on the back lower left corner.)
h. Power OFF all three UPS units DC Input. (Via DC input circuit breaker.)

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MANUEL DATA COPY FOR S.S.D - 1980's

① ~~Make sure~~ PROCESSOR MUST BE INACTIVE BEFORE STARTING.

② SELECT C.U. THAT you will do data COPY FROM

③ ~~Make sure~~ VERIFY WHAT DATA COPY DRIVE IS READY

④ PUSH (FLD) (Φ) ANSWER ACCORDINGLY

(A) "DO YOU WANT DATA RESTORE?" - No

(B) "STARING CYL 000 ENDING CYL 822 OK? - NO

(C) "ENTER STARTING CYL:" 999

ONCE 999 HAS BEEN ENTER

DATA COPY should BE ~~INITIATED~~ INITIATED

ONCE COMPLETED THE MESSAGE

"DATA COPY Completed" will APPEAR

IAS - 432/1782

Power UP Procedures After Power Failures

1. After shutdown authorization a total cold start power up sequence must be performed.

   A. Place datacopy drive into write protect.

   B. Power off all three control cabinets, and all four drum cabinets. (Via the circuit breakers on the back panels)

   C. Power off the datacopy drive. (Via the circuit breaker on the back lower left corner).

   D. Power off all three UPS units DC input. (Via D.C. input circuit breaker).

II. Power UP Sequence

   A. Wait for utility power to be restored.

   B. Power on the D.C. input to all three UPS units.

      1. Place the two drum ups unit into UPS mode.

      2. Power on the datacopy drive.

      3. After datacopy green ready light comes on, place control unit UPS into UPS mode (IAS-UPS).

   C. Power up all four drum cabinets and all three controller cabinets.

   D. Check that all three UPS units are still in the UPS mode.

III. Resetting the Sub-system.

   A. Clear Routine

      1. Press the reset button.

      2. ILD 1- Clear SMD Display "YES"

      3. ILD 3 - Clear Scratch Memory "YES"

      4. ILD 7 - Clear Buffer Memory "YES"

      5. ILD F - Clear History Map "YES"

   B. Repeat for other control unit.

Power UP Procedures After Power Failures (Continued)

C. Restoring data files to drums

1. Prep all drums

a. Place Prep toggle switches up.

b. Press any red prep button.

c. After lights go out, put all prep switches down.

2. ILDØ - Do you want data restored "YES"

D. Load time of day (TOD)

E. Load "C"

F. Display time of day (TOD)

G. Remove write protect from data copy drive.